ENERGY IS EVERYWHERE!

U.S. DEPARTMENT OF ENERGY | Energy Efficiency & Renewable Energy

STEM and Energy Literacy

Webinar Series sponsored by Housing and Urban Development, Department of Energy and Department of Education

September 17, 2015

Webinar Agenda

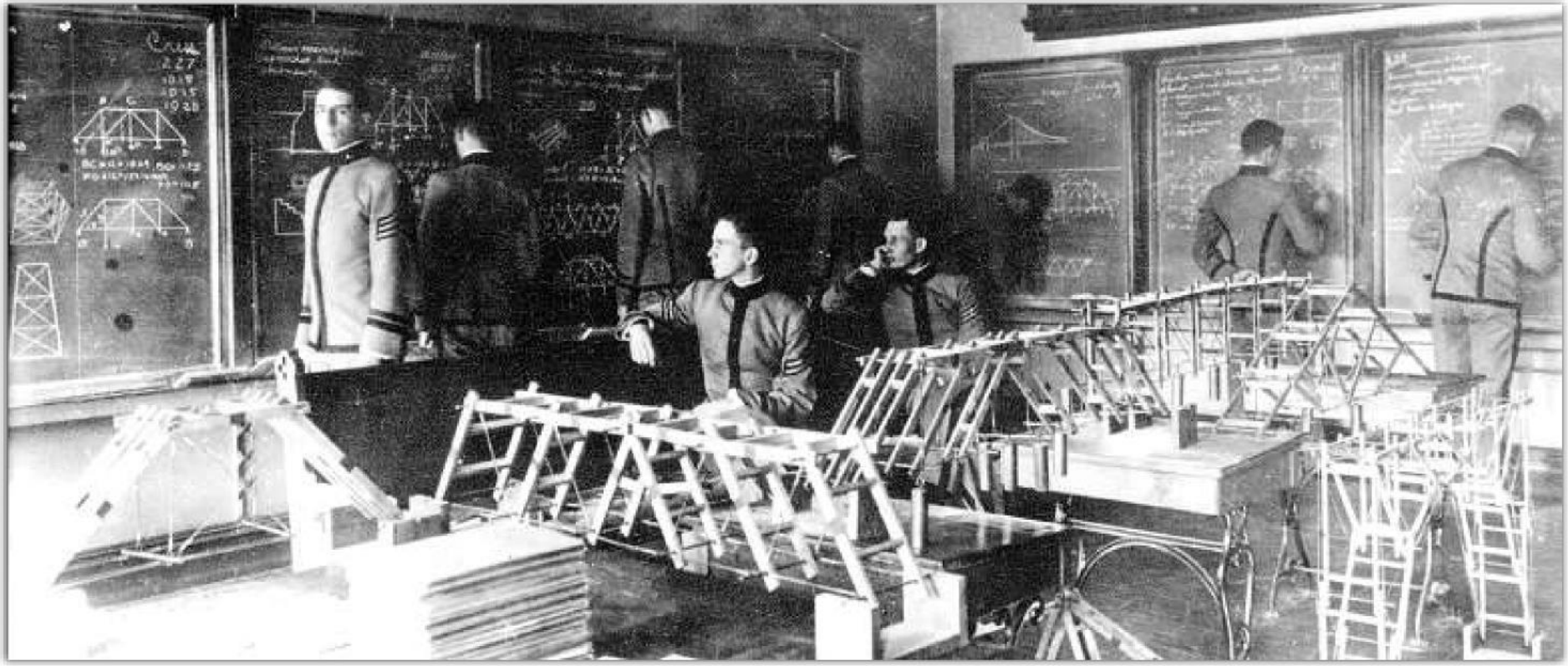
- Welcome and Intro to Webinar Series (HUD)
- STEM Innovations Hub
  - West Point Academy and HUD
- Energy Literacy Course for Adult Educators
  - Department of Education
- Q & A

You are on mute! Use your webinar bar to fill out poll or chat to send in a question.

Email SEEDInitiative@hud.gov about the Energy is Everywhere Webinar Series

UNITED STATES MILITARY ACADEMY
WEST POINT.

The Center for Leadership & Diversity in STEM



The Nation ’s First School of Engineering

UNITED STATES MILITARY ACADEMY
WEST POINT.

CLD STEM Senior Staff

Ms. Lori Sheetz.
Associate Director

LTC Anthony N. Johnson, Ph.D.
Director

Dr. Kendall Williams
Associate Director

The West Point Center for Leadership & Diversity in STEM (CLD STEM) implements strategic engagements to attract new talent at the pre-college level, support cadets studying STEM at West Point, and sustain talent at the post-graduate and professional levels.

CLD STEM is dedicated to attracting and retaining STEM talent for West Point, the Army, and the nation.

CLD STEM Mission

Our mission is to increase the recruitment and retention of underrepresented minority and disadvantaged youth populations in science, technology, engineering, and mathematics (STEM) by targeting students at the pre-college level in order to boost the aggregate of students prepared to major in STEM.

CLD STEM Programming

Our program focuses on:

- Introducing STEM to students at the pre-college level (middle school),
- Supporting cadets studying STEM at West Point, and
- Retaining talent at the post-graduate and professional levels.

In this way, the center approaches the need for STEM experts by addressing the entire pipeline—from pre-college students, to college-level students (cadets), and finally to experts and emerging scholars. Through our programs, the center places a specific—although not exclusive—emphasis on underrepresented minorities and underserved youth populations at the middle school level.

Mobile STEM Workshops

- CLD STEM initiative comprised of West Point faculty and cadets that travel around the United States organizing STEM workshops for primarily middle school students.
- Educate students and parents on West Point and the US Army
- Inspire interest in Science, Technology, Engineering and Math (STEM)
- Present distinguished STEM professionals to talk to students about opportunities in STEM fields.
- Students participate in faculty/cadet-facilitated STEM workshops.
- Mobile STEM Workshops support the mission of the West Point Directorate of Admissions.
- Mobile STEM Workshops support Army Education Outreach Programs.
- Cadets learn a lot about themselves and receive valuable practice in teaching and mentoring, and a deeper appreciation of their respective roles as leaders in STEM related fields.

MyPad to IPad to What?

1980 Technology

2010 Technology

2040 Technology

Why STEM?

- America needs STEM professionals to remain strong.
- STEM is rewarding, because...
- STEM is creative, exciting, state-of-the-art problem-solving.

Mobile STEM Workshops

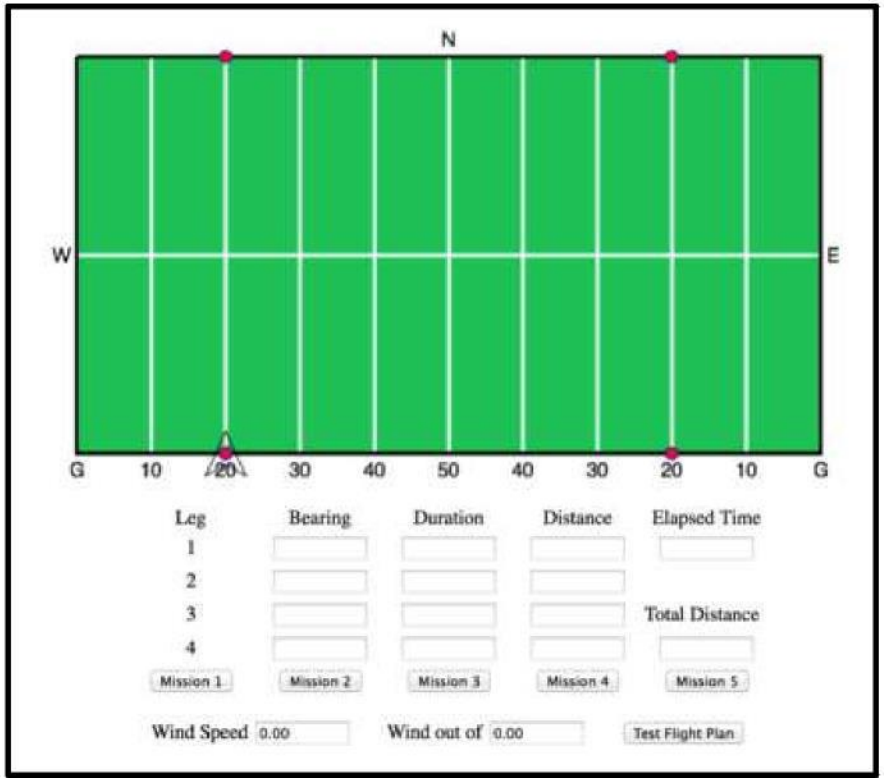
- Lego Mindstorm Robots
- VEX Robotics

Mobile STEM Workshops

- Bridge Building
- West Point Bridge Design Software

Mobile STEM Workshops

- Quadcopter Drones
- Mathematical Practical Exercise



Mobile STEM Workshops

- Community Leaders
- Parents
- Educators
- Cadet Presentations

UNITED STATES MILITARY ACADEMY
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STEM Digital Badge

Supporting cadets studying STEM…

Enhance academic preparedness, awareness, and performance

Society of Women Engineers

National Society of Black Engineers

WP Chapter of NSBE Engineering Expo

Summer Engineering Experience for Kids AIAD

Mobile STEM Workshop

UNITED STATES MILITARY ACADEMY
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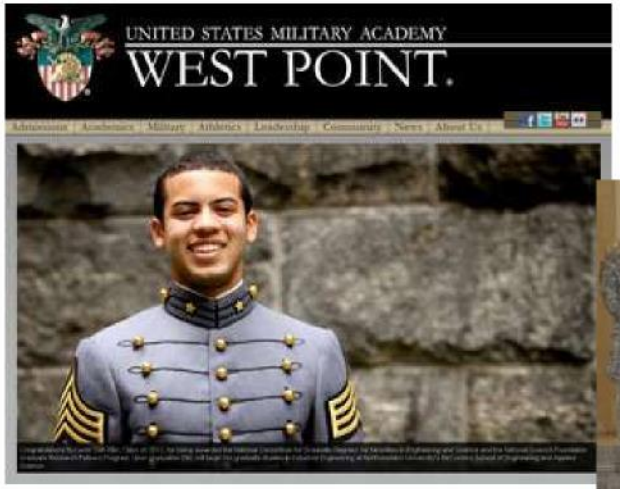
Supporting cadets and Retaining talent



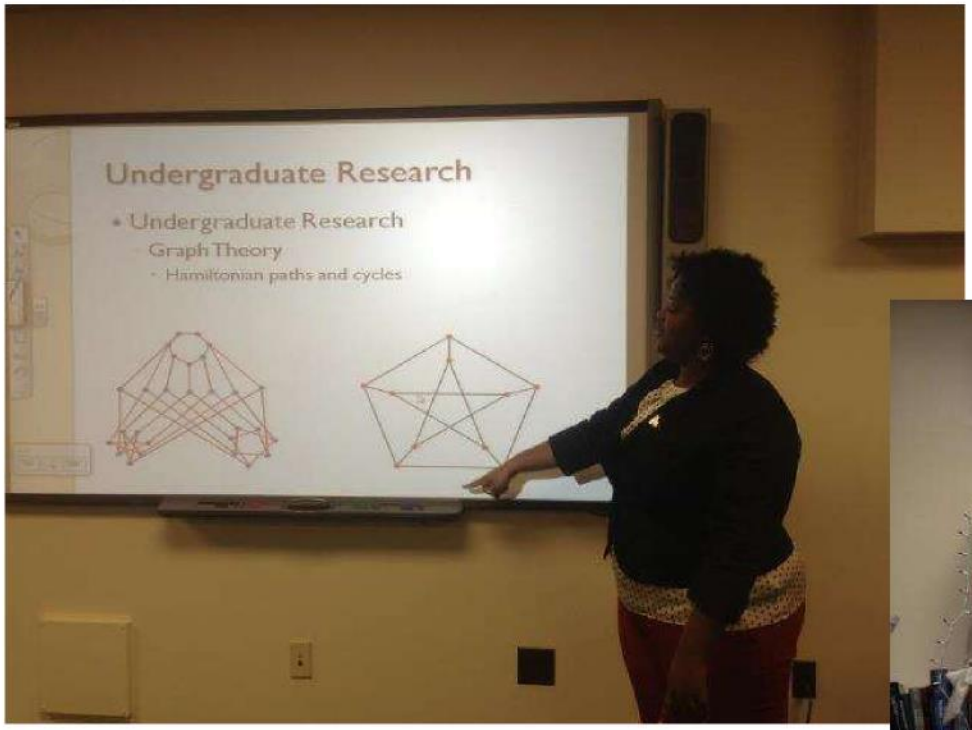
2LT Sam Ellis
GEM Ph.D. Engineering Fellowship
Northwestern

Excel Scholars

CDT Antonia Allen
GEM Ph.D. Fellowship
MIT

UNITED STATES MILITARY ACADEMY
WEST POINT.

Supporting cadets and Retaining talent



Dr. Syvillia Averett
Assistant Professor at Central State University, Ohio
Women of Color in Mathematical Sciences

Dr. Alejandra Alvarado
Purdue University, Indiana
Women of Color in Mathematical Sciences

UNITED STATES MILITARY ACADEMY
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Seeds of Humanity

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ASSOCIATION OF GRADUATES USMA DISTINGUISHED SOCIETY

NORTHROP GRUMMAN

UNITED STATES MILITARY ACADEMY
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Contact Us

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Teaching Energy Literacy to Adult Learners

September 17, 2015

LINCS

Literacy Information and Communication System

Welcome and Introductions

Heidi Silver-Pacuilla, U.S. Department of Education, Office of Career, Technical, and Adult Education

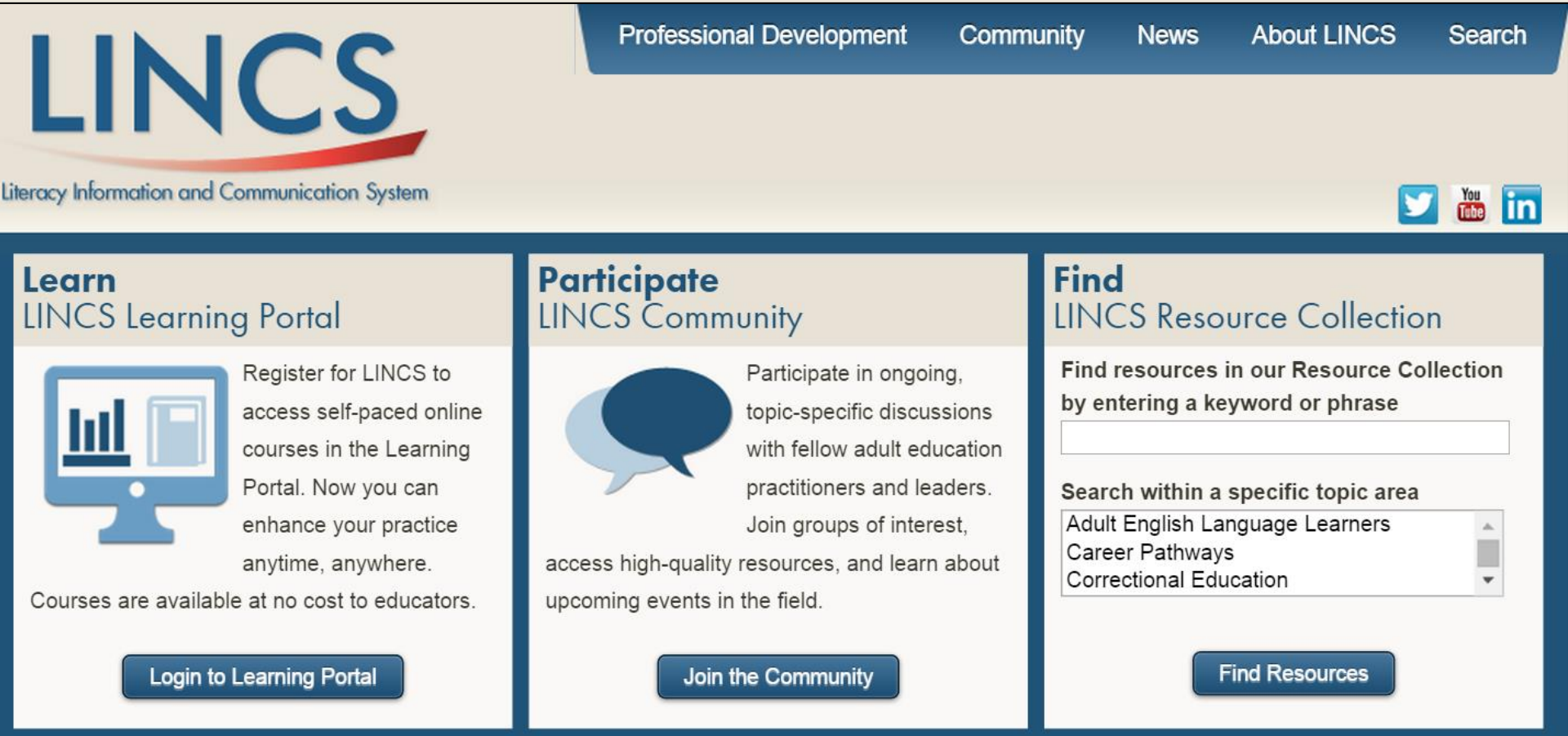
Jessie Stadd, LINCS Resource Collection, Manhattan Strategy Group
Course Manager

Objectives/Agenda

- Provide an overview of the partnership between the U.S. Departments of Education and Energy
- Provide an overview of LINCS & the courses
- Walk through examples of how the courses can be used to assist public housing service providers
- Discuss how to access LINCS courses

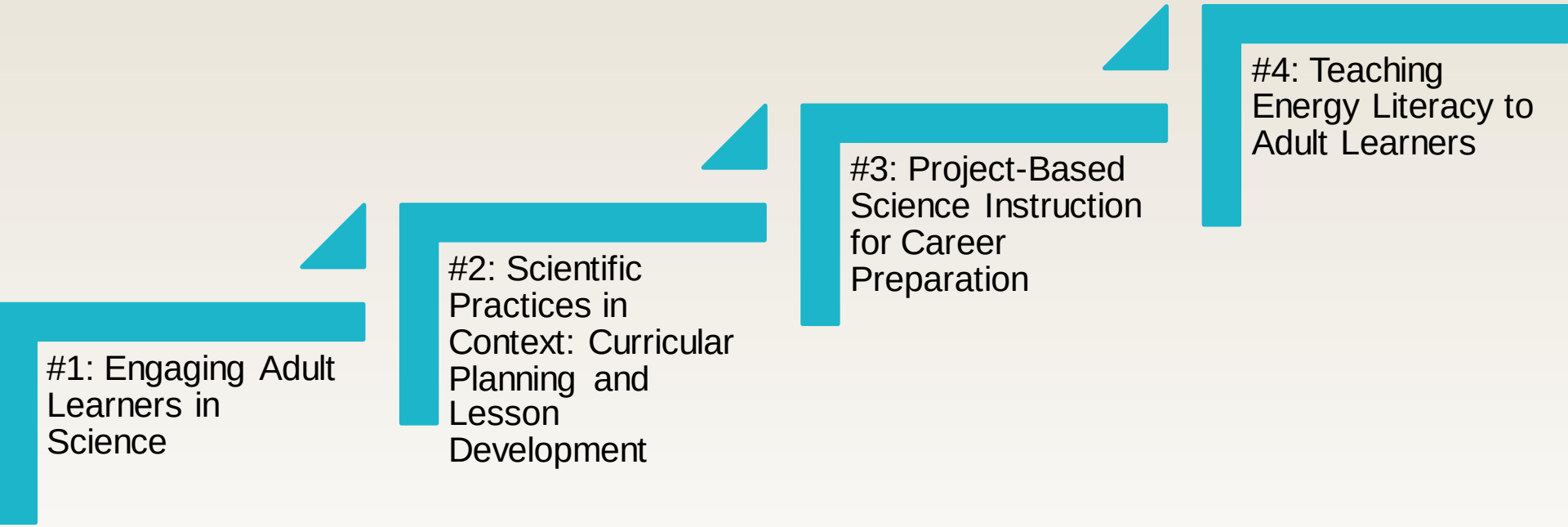
About the Literacy Information and Communication System (LINCS)

- LINCS is a national leadership initiative of the U.S. Department of Education, Office of Career, Technical, and Adult Education (OCTAE)



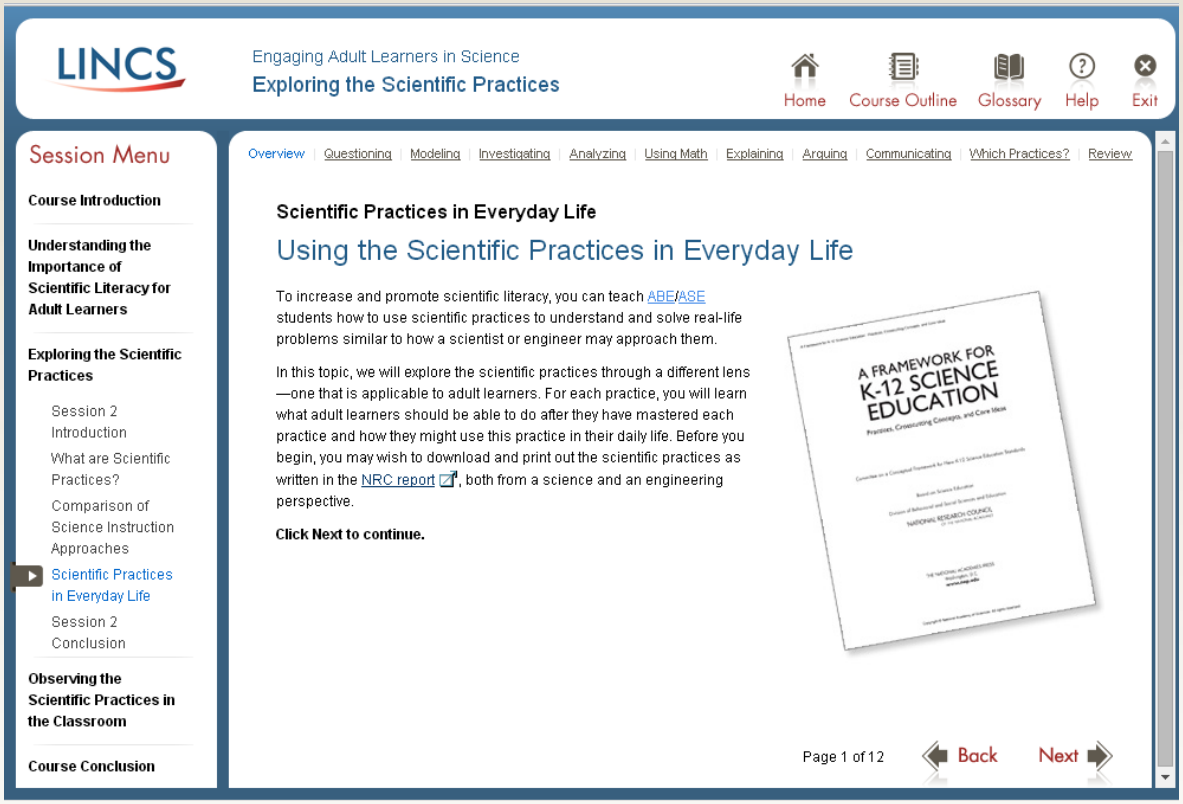
COURSE OVERVIEW

Courses Build Off of Each Other



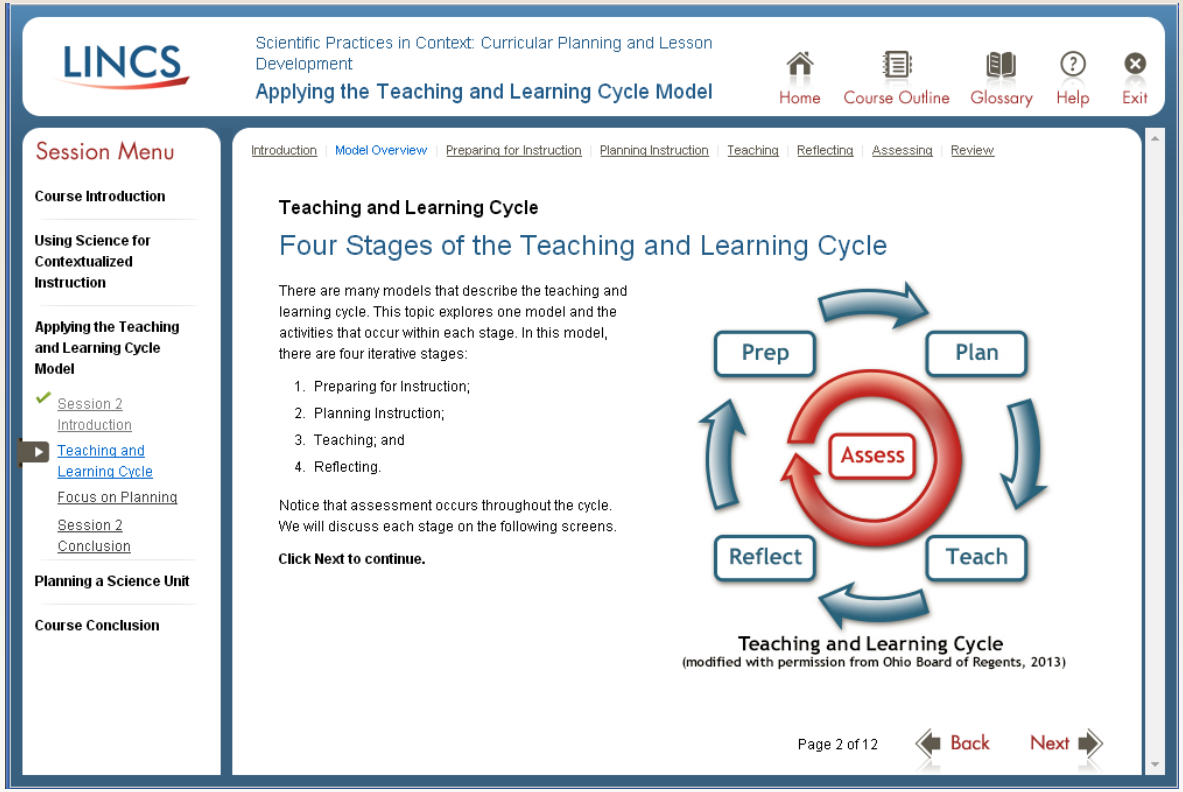
Engaging Adult Learners in Science

- Introduces the relevance of science in the ABE/ASE classroom
- Introduces the use of scientific practices and the shift away from the scientific method in the ABE/ASE classroom



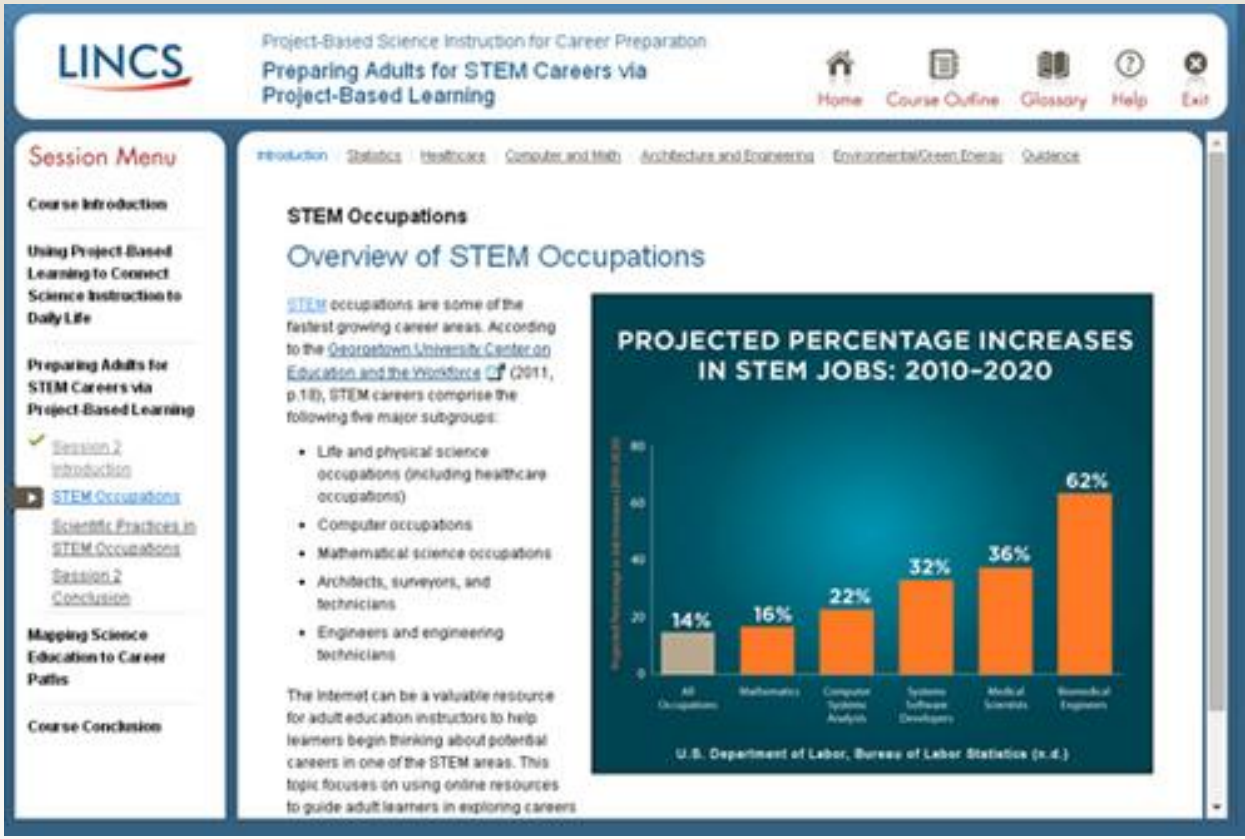
Scientific Practices in Context: Curricular Planning and Lesson Development

- Provides guidance on where to find credible science resources
- Introduces teaching science in context
- Reviews the Teaching & Learning Cycle, focusing on curriculum design within the context of a science unit



Project-Based Science Instruction for Career Preparation

- Project-based Learning (PBL): What is it and how can it be used for science instruction?
- How PBL can be used to help ABE/ASE students prepare for STEM careers



Teaching Energy Literacy to Adult Learners

- Learning Objectives:
  - Define energy literacy
  - Identify the Energy Literacy Framework's seven essential Principles and Fundamental Concepts
  - Employ strategies for teaching the seven principles to adult learners
  - Use online resources to guide adult learners in exploring the Fundamental Concepts of each of the seven principles

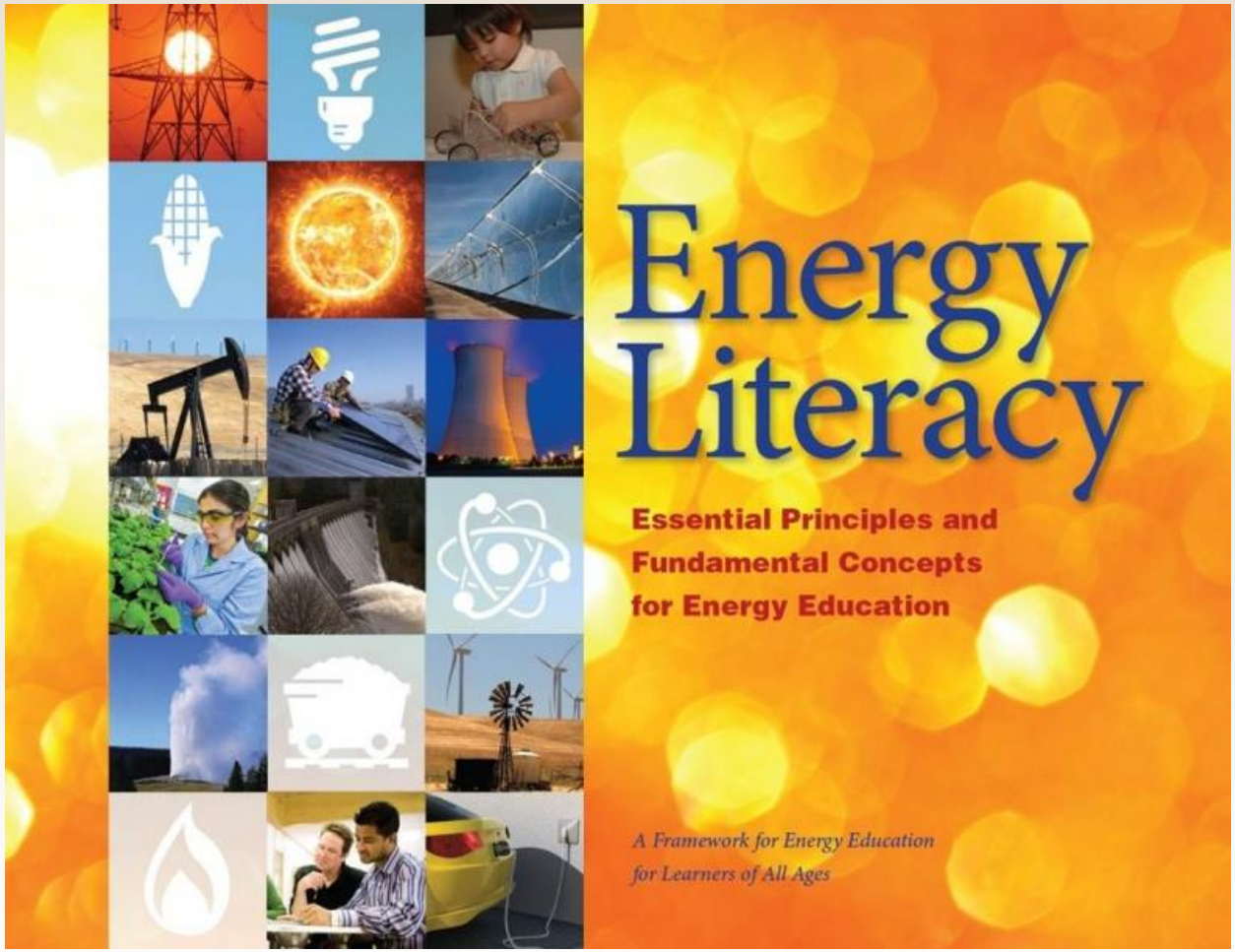
Dr. Michael E. Webber, Deputy Director, Energy Institute,
University of Texas at Austin
Course Author

Why is Energy Literacy Relevant to Adult Learners?

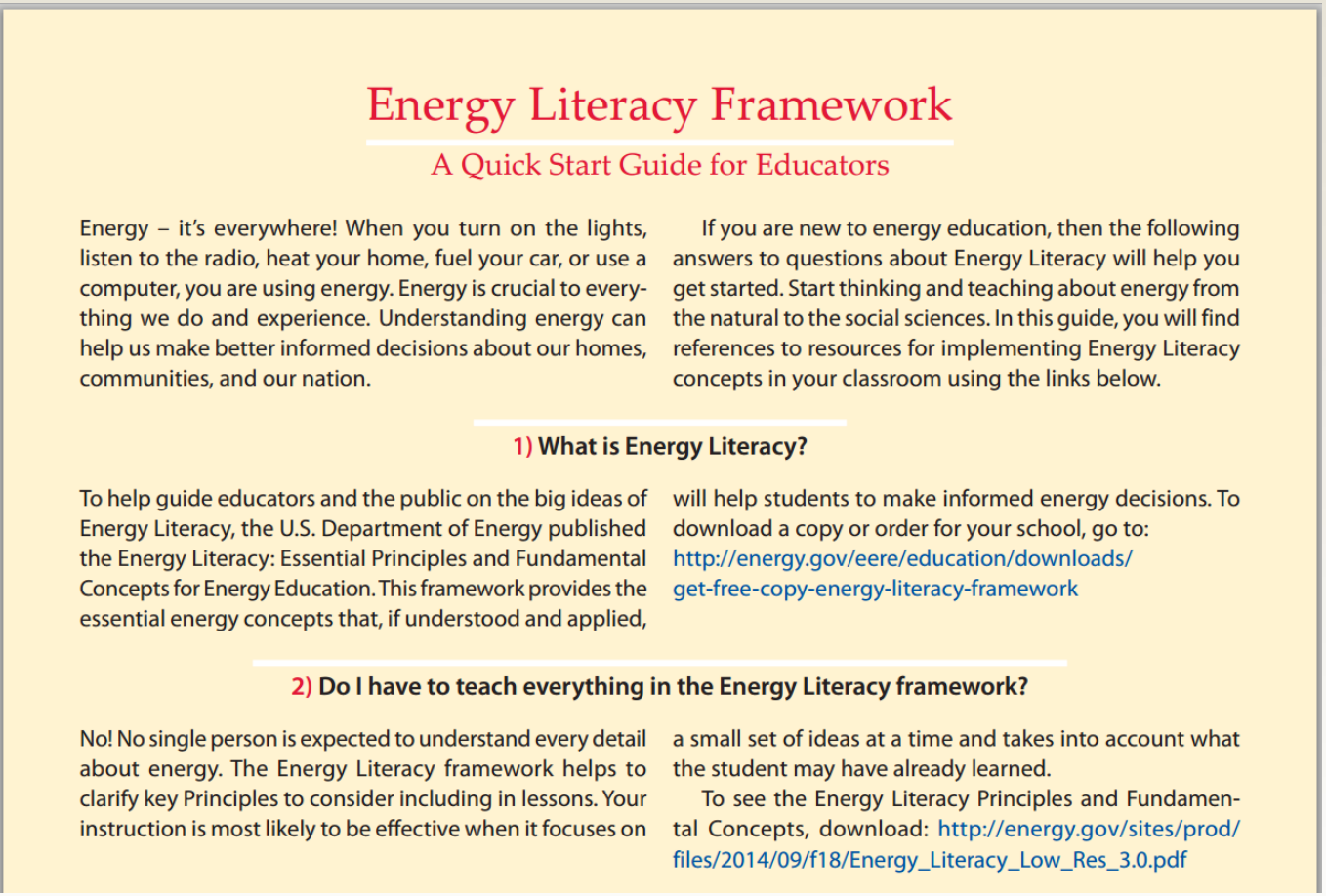
- Interdisciplinary content area
- New college and career readiness standards
- New high school equivalency assessments
- Preparation for jobs and careers in the energy sector through bridge programs and/or career pathways

U.S. Department of Energy Resources

- Energy Literacy Framework
- Supplemental materials:
  - Guides
  - Videos
  - Social Studies



Energy Literacy Guides



Energy Literacy Framework

A Quick Start Guide for Educators

Energy – it's everywhere! When you turn on the lights, listen to the radio, heat your home, fuel your car, or use a computer, you are using energy. Energy is crucial to everything we do and experience. Understanding energy can help us make better informed decisions about our homes, communities, and our nation.

If you are new to energy education, then the following answers to questions about Energy Literacy will help you get started. Start thinking and teaching about energy from the natural to the social sciences. In this guide, you will find references to resources for implementing Energy Literacy concepts in your classroom using the links below.

1) What is Energy Literacy?

To help guide educators and the public on the big ideas of Energy Literacy, the U.S. Department of Energy published the Energy Literacy: Essential Principles and Fundamental Concepts for Energy Education. This framework provides the essential energy concepts that, if understood and applied, will help students to make informed energy decisions. To download a copy or order for your school, go to: http://energy.gov/eere/education/downloads/get-free-copy-energy-literacy-framework

2) Do I have to teach everything in the Energy Literacy framework?

No! No single person is expected to understand every detail about energy. The Energy Literacy framework helps to clarify key Principles to consider including in lessons. Your instruction is most likely to be effective when it focuses on a small set of ideas at a time and takes into account what the student may have already learned.

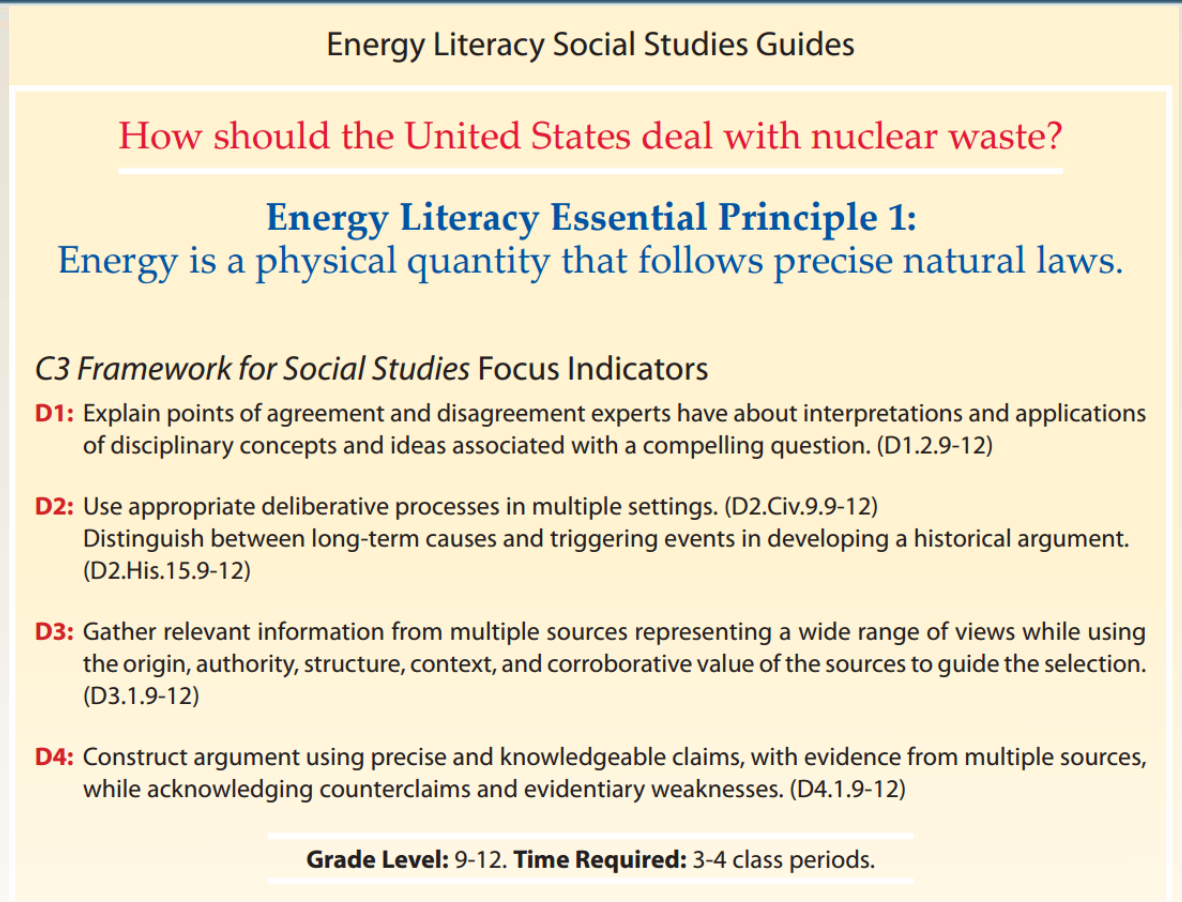
To see the Energy Literacy Principles and Fundamental Concepts, download: http://energy.gov/sites/prod/files/2014/09/f18/Energy_Literacy_Low_Res_3.0.pdf

- Quick Start Guide
- Student Guide
- Teacher Guide

Energy Literacy Videos

- Dedicated video for each principle
- Videos are between 5 and 7 minutes

Social Studies Guides



Energy Literacy Social Studies Guides

How should the United States deal with nuclear waste?

Energy Literacy Essential Principle 1:
Energy is a physical quantity that follows precise natural laws.

C3 Framework for Social Studies Focus Indicators

D1: Explain points of agreement and disagreement experts have about interpretations and applications of disciplinary concepts and ideas associated with a compelling question. (D1.2.9-12)

D2: Use appropriate deliberative processes in multiple settings. (D2.Civ.9.9-12)
Distinguish between long-term causes and triggering events in developing a historical argument. (D2.His.15.9-12)

D3: Gather relevant information from multiple sources representing a wide range of views while using the origin, authority, structure, context, and corroborative value of the sources to guide the selection. (D3.1.9-12)

D4: Construct argument using precise and knowledgeable claims, with evidence from multiple sources, while acknowledging counterclaims and evidentiary weaknesses. (D4.1.9-12)

Grade Level: 9-12. **Time Required:** 3-4 class periods.

- Each principle has a guide with targeted interdisciplinary indicators and suggested teaching activities and resources.

USING THE COURSES

Use the Course To: Get Ideas

- Interdisciplinary content – including health and nutrition
- Community of Practice: https://community.lincs.ed.gov/

Making Interdisciplinary Connections with Nutrition and Health Literacy Content

Presenting food as an energy source measured through calories is an easy way to make the energy flow process understandable and relevant. This is also an opportunity to make interdisciplinary connections with nutrition or health literacy content.

Explore some online curriculum resources you can use to make those connections, including:

- An ESOL health literacy curriculum that includes lessons on healthy eating and the food pyramid (see number 16 in the publication's list of topics).
- ESOL lessons on Nutrition at the Intermediate and Advanced Beginning levels.
- An ABE lesson on food labels.

Have you successfully taught nutrition content in which you taught the concepts of carbohydrates, fats, and proteins as an energy unit (calories)? Share your tips and teaching strategies in the LINCS Health Literacy group.

Use the Course To: Explore Local Issues

- Exploring local issues using real-time data:
  - Air Quality
  - Earthquakes
  - Transportation

Suggestions for Professional Developers or Managers

- Use the certificates of completion
- Guide a cohort of providers in taking the course
- Facilitate follow-up discussions, potentially using the LINCS discussion threads as an additional means of continuous support

ACCESSING THE COURSES

How to Access the Courses

- All LINCS courses are available on the LINCS Learning Portal
  - Must be a registered LINCS user
  - Single sign on now in effect

LINCS Literacy Information and Communication System

LINCS

Literacy Information and Communication System

Professional Development | Community | News & Events | About

- Federal Initiatives
- Resource Collection
- LINCS Regional Professional Development Centers
- Publications
- LINCS Online Courses

Learn
LINCS Learning Portal

Access self-paced online courses for adult education practitioners. Engage in a course any time, anywhere.

Enroll Now

Par
LIN

Participate in ongoing, topic-specific discussions with fellow adult education practitioners and leaders. Join groups of interest, access high-quality resources, and learn about upcoming events in the field.

Join the Community Learn More

Find
LINCS Resources Collecti

Find resources in our Resource Col by entering a keyword or phrase

Search within a specific topic area

- Adult English Language Learners
- Career Pathways
- Correctional Education
- College and Career Standards

Find Resources

Welcome to LINCS, a professional learning community for adult educators that provides access to resources, professional development,

Announcements

Recent Conversations

July 30, 2014

Take Action Now! Merged LINCS Accounts Coming Soon

What's New

Handbook for Sustaining Standar Based Education i

Professional Development
Federal Initiatives
Resource Collection
LINCS Regional Professional Development Centers
Publications
LINCS Online Courses
Community
News & Events
About
Search

LINCS Online Courses

LINCS has a number of self-paced online courses for adult education practitioners. These courses are available for use anytime, anywhere on the LINCS Learning Portal. We will be adding new courses periodically, so be sure to sign up for the LINCS Community to receive announcements on new professional development materials.

LINCS Learning Portal

NEW - Access online professional development opportunities at the LINCS Learning Portal.

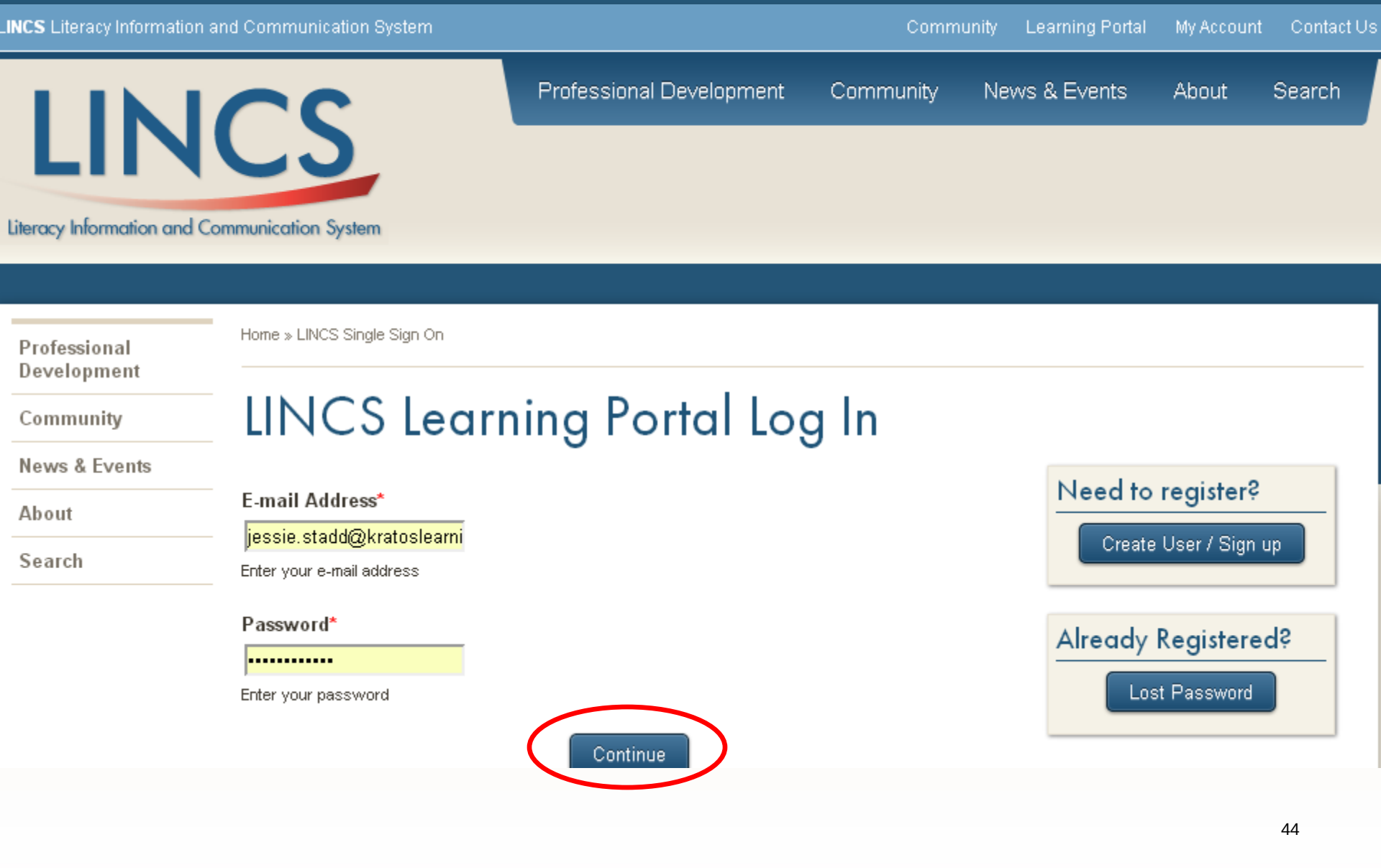
Adult Career Pathways

The Adult Career Pathways courses are developed for state and local adult education providers to deliver programs that help low-skilled adults succeed in postsecondary education and employment. Topics include Building Strategic Partnerships, Developing Effective Bridge Programs, Designing Contextualized Instruction, Integrating Career Counseling and Planning, and Engaging Employers in Adult Career Pathways. Access these courses through the LINCS Learning Portal.

ELL-U

The ELL-U courses consist of five on-demand, self-paced online learning modules tailored to meet the needs of educators working with

Learning Portal Log In



Open Math - Open Resources: Engage Adult Learners for 21st Century Skills

OER STEM Training

Build a Lesson with OER

Open your Classroom with OER

LINCS Science

Engaging Adult Learners in Science

Scientific Practices in Context

Project-Based Science Instruction for Career Preparation

Teaching Energy Literacy to Adult Learners

LINCS Technology and Learning

Integrating Technology in the Adult Education Classroom

Report Technical Issue

Teaching Energy Literacy to Adult Learners

You are logged in as Jessie Stadd (Log out)

Home ▶ Courses ▶ LINCS Science ▶ Energy Literacy ▶ Enroll me in this course ▶ Enrollment options

Navigation

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  - My courses
- Contact Us

Administration

- Course administration
  - Enroll me in this course
- My profile settings

Enrollment options

Teaching Energy Literacy to Adult Learners

This course explains the concept of energy literacy, and introduces the Energy Literacy Framework developed by the U.S. Department of Energy. Educators can use the Framework (available in English and Spanish) to teach adult learners about the role of energy in their lives and to generate potential interest in energy as a career field. This course explores the Fundamental Concepts of the seven essential principles outlined in the Energy Literacy Framework and provides examples of online resources teachers can use to teach the principles and associated concepts to adult learners.

Self enrollment (Student)

No enrollment key required.

Enroll me

LINCS
Literacy Information and Communication System

Report Technical Issue

Engaging Adult Learners in Science

You are logged in as JessieS Test (Logout)

Home ► My courses ► LINCS Science ► Engaging Adult Learners ► Engaging Adult Learners in Science ► Launch training module: Engaging Adult Learners in...

Navigation

- Home
  - My home
  - My profile
  - My courses
    - LINCS Science
      - Engaging Adult Learners
        - Participants
        - Engaging Adult Learners in Science
          - **Launch training module: Engaging Adult Learners in...**

Launch training module: Engaging Adult Learners in Science

This course provides an overview of the relevance and importance of science in the adult basic education/adult secondary education (ABE/ASE) classroom and introduces the use of scientific practices in the ABE/ASE classroom.

Number of attempts allowed: Unlimited
Number of attempts you have made: 0
Grading method: Last completed attempt
Grade reported: None

Enter

Navigation

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Administration

- Course administration
  - Unenroll me from Energy Literacy
- My profile settings

Your progress

Teaching Energy Literacy to Adult Learners

Course Introduction

Open all Close all

Instructions: Clicking on the section name will show / hide the section.

1 ▸ Using the Energy Literacy Framework

2 ▸ Principle 1

LINCS
Literacy Information and Communication System

Report Tec

Engaging Adult Learners in Science

You are logged in as JessieS

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      - **Engaging Adult Learners**
        - Participants

Settings

- Course administration
  - Unenroll me from Engaging Adult Learners
- My profile settings

Your progr

Engaging Adult Learners in Science

Launch training module: Engaging Adult Learners in Science

This course provides an overview of the relevance and importance of science in the adult basic education/adult secondary education (ABE/ASE) classroom and introduces the use of scientific practices in the ABE/ASE classroom.

Certificate of completion - LINCS Science

LINCS
Literacy Information and Communication System

Report Te

Engaging Adult Learners in Science

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Navigation

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      - Participants
      - Engaging Adult Learners in Science
        - **Certificate of completion - LINCS Science**

Settings

- Course administration

Summary of Previously Received Certificates

Issued
Monday, August 4, 2014, 11:58 AM

Click the button below to open your certificate in a new browser window.

Get your certificate

CERTIFICATE OF COMPLETION

This is to certify that

JessieS Test

has completed the course

Engaging Adult Learners in Science

Completion Hours: 2.5

on

August 4th, 2014

through the Literacy Information and Communication System, http://lincs.ed.gov

Cheryl L. Keenan, Director
Office of Vocational and Adult Education
U.S. Department of Education

LINCS
Literacy Information and Communication System

Q&A